

**METHOD AND SYSTEM FOR INCREASED BANDWIDTH  
EFFICIENCY IN MULTIPLE INPUT - MULTIPLE OUTPUT  
CHANNELS**

**ABSTRACT**

In one disclosed embodiment, an input bit stream is supplied to a trellis code block. For example, the trellis code block can perform convolutional coding using a rate 6/7 code. The output of the trellis code block is then modulated using, for example, trellis coded quadrature amplitude modulation with 128 signal points or modulation symbols. The sequence of modulation symbols thus generated can be diversity encoded. The diversity encoding can be either a space time encoding, for example, or a space frequency encoding. The sequence of modulation symbols, or the sequence of diversity encoded modulation symbols, is fed to two or more orthogonal Walsh covers. For example, replicas of the modulation symbol sequences can be provided to increase diversity, or demultiplexing the modulation symbol sequences can be used to increase data transmission rate or "throughput." The outputs of the Walsh covers are fed as separate inputs into a communication channel.